ENGINE 612

Modification notes

12.9.02	Engine oil level modified	Step 9: Only Model 203: Up to engine end number: 134 163 oil level **MAX. 135** mm, **MIN 110** mm. As of engine end number: 134 164 oil level **MAX. 124,5** mm, **MIN 99,5** mm.	

	Remove		
Danger!	**Risk of death** cased by vehicle slipping or toppling off of the lifting platform.	Align vehicle between the columns of the hydraulic hoist and position the four support plates below the hoist support points specified by the vehicle manufacturer.	AS00.00-Z-0010-01A
Danger!	**Risk of accident** caused by vehicle starting off by itself when engine is running. **Risk of injury** caused by contusions and burns when working in engine during starting procedure	Secure vehicle to prevent it from moving. Wear closed and snug-fitting work clothes. Do not grasp hot or rotating parts.	AS00.00-Z-0005-01A
	Change the engine oil only when the engine is at operating temperature		
1	Remove trim panel of cylinder head cover		AR01.20-P-5014-02B
2	Replace oil filter element, drain oil filter	Model 203: Remove clamp attaching fuel line in order to insert wrench socket. Nm Socket wrench bit	AP18.00-P-0101-06EG *BA18.20-P-1002-01G *103589020900
3.1	Suction off engine oil		AP18.00-P-0101-02Z
4.1 f	Remove rear left frame cross brace	Only necessary when draining engine oil at oil drain plug. MODEL 163 Model 203 except 203.018/218/718, 209 Model 210	AR94.30-P-5300P AR94.30-P-5300AB
4.2 f	Detach lower engine compartment paneling	Only necessary when draining engine oil at oil drain plug. Only Model 203.018/218/718	AR61.20-P-1105P
5.1	Unscrew oil drain plug, drain engine oil		
	Install		
6.1	Screw in oil drain plug	Replace sealing ring, in order to avoid leakage. Nm	*BA01.45-P-1003-01A
7 g	Pour in engine oil Viscosity classes of engine oils (car engines)	Note specified and approved quality grades and viscosity classes conforming to SAE at enduring ambient temperatures. Sheet 224.1	*BE18.00-P-1001-02B *BF18.00-P-1001-01A BB00.40-P-0224-01A
8	Run engine and inspect for leaks		
9	Switch off engine		
10.1 f	Fit on bottom part of noise encapsulation	Only necessary when draining engine oil at oil drain plug. Model 210 MODEL 203, 209 MODEL 163	AR94.30-P-5300AB AR94.30-P-5300P
10.2 f	Install lower engine compartment paneling.	Only necessary when draining engine oil at oil drain plug. Only Model 203.018/218/718	AR61.20-P-1105P

11	Check oil level approx. 5 min. after switching off warm engine	Insert oil dipstick up to the stop and keep to a residence time of at least 3 seconds. Model 163, 210 with Engine 612 Model 203, Model 209 with Engine 612 On Model 203, Model 209 after oil level check pay attention to correct seating of the cap, otherwise it could result in engine damage. Only Model 203: Up to engine end number: 134 163 oil level **MAX. 135** mm, **MIN 110** mm. As of engine end number: 134 164 oil level **MAX. 124,5** mm, **MIN 99,5** mm. Measuring rod	*BE18.00-P-1001-02B *120589072100
12	Install trim panel of cylinder head cover		AR01.20-P-5014-02B
		Nm Nm	*BA01.20-P-1002-01A *BA01.20-P-1003-01A

Test values for engine lubrication - general

Number	Designation			Engine 612.961	Engine 612.963
BE18.00-P-1001-02B	Dipstick marking Color red t 1 Color black t 2 Color green t 3 Color gentian blue t 4	Numbers on handle	Number	60207	60206
		Round handle	Color	-	-
		Bottle opener-shaped handle	Color	1	1

Nm **Oil pan**

Number	Designation			Engine 612.961/962/ 963/965/966, 613.961	Engine 612.967	Engine 612.990
BA01.45-P-1003-01A	Oil drain plug at oil pan	M12	Nm	-	-	-
		M14	Nm	30	30	30

Nm **Engine lubrication, oil filter**

Number	Designation		Engine 612.961/962/ 963/967/990, 613.960/961
BA18.20-P-1002-01G	Screw cap at oil filter	Nm	25

Nm **Crankcase ventilation, cylinder head cover**

Number	Designation	Engine 612.961/ 962/967	Engine 612.963	Engine 612.990

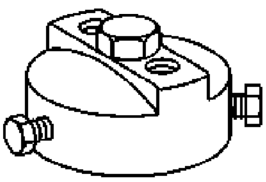
BA01.20-P-1002-01A	Screw of trim panel of cylinder head cover to cylinder head cover	Nm	10	10	8
BA01.20-P-1003-01A	Screw attaching cover panel to charge air distribution pipe	Nm	10	10	-

Engine lubrication system

Number	Designation			Engine 612.961	Engine 612.962/ 967	Engine 612.963/966
BF18.00-P-1001-01A	Engine oil	Filling capacity (oil and filter change)	Liter	7,0	6.5	7.5
		Specifications for Operating Fluids	Sheet	BB00.40-P-0228-01A	BB00.40-P-0228-01A	BB00.40-P-0228-01A
			Sheet	BB00.40-P-0228-03A	BB00.40-P-0228-03A	BB00.40-P-0228-03A
			Sheet	BB00.40-P-0228-05A	BB00.40-P-0228-05A	BB00.40-P-0228-05A
			Sheet	BB00.40-P-0229-01A	BB00.40-P-0229-01A	BB00.40-P-0229-01A
			Sheet	BB00.40-P-0229-03A	BB00.40-P-0229-03A	BB00.40-P-0229-03A
			Sheet	BB00.40-P-0229-05A	BB00.40-P-0229-05A	BB00.40-P-0229-05A

Engine lubrication system

Number	Designation			Engine 612.990
BF18.00-P-1001-01A	Engine oil	Filling capacity (oil and filter change)	Liter	6.5
		Specifications for Operating Fluids	Sheet	BB00.40-P-0228-01A
			Sheet	BB00.40-P-0228-03A
			Sheet	BB00.40-P-0228-05A
			Sheet	BB00.40-P-0229-01A
			Sheet	BB00.40-P-0229-03A
			Sheet	BB00.40-P-0229-05A



103 589 02 09 00

Socket wrench bit



120 589 07 21 00

Measuring rod

Commercially available tools (see Workshop Equipment Manual)

Number	Designation	Make (e. g.)	Order number
WH58.30-Z-1007-16A	Engine oil extractor	Deutsche Tecalemit Am Metallwerk 11 33659 Bielefeld	1.386950.2

